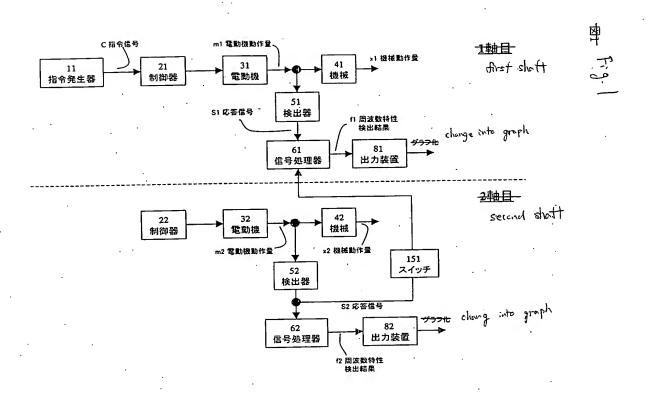
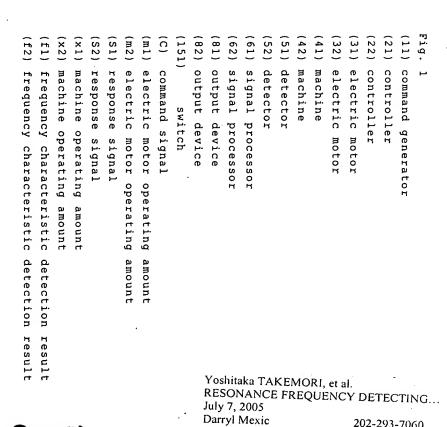
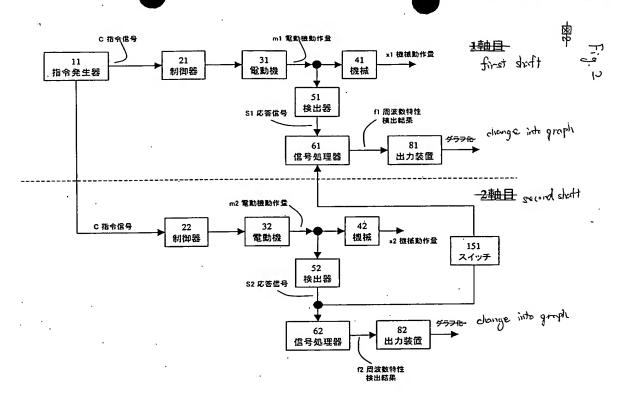
202-293-7060





Q88971 1 of 13



```
(f1)
                                                                                                                                         (82)
                                                  (S2)
                                                                                                                           (151) switch
                                                                                                                                                     (81)
                                                                                                                                                                  (62)
                                                                                                                                                                               (61)
                                                                                                                                                                                                       (51)
                                                                                                                                                                                                                    (42)
                                                                                                                                                                                                                                (41)
                                                                                                                3
                                                                                                                                       output device
                                                                                                                                                   output device
frequency characteristic detection result
                       machine operating amount
                                    machine operating
                                                                                     electric motor
                                                                                                               command
                                                                                                                                                                signal processor
                                                                                                                                                                             signal processor
                                                                                                                                                                                          detector
                                                                                                                                                                                                      detector
                                                                                                                                                                                                                  machine
                                                                                                                                                                                                                               machine
                                                                                                                                                                                                                                          electric motor
                                                                                                                                                                                                                                                       electric motor
                                                                                                                                                                                                                                                                     controller
                                                                                                                                                                                                                                                                                 controller
                                                                                                                                                                                                                                                                                             command generator
                                                             response
                                                                          electric
                                                                                                  command signal
            frequency characteristic
                                                                                                              signal
                                                 signal
                                                            signal
                                                                         motor operating
                                                                                     operating
                                    amount
                                                                          amount
            detection
                                                                                      amount
             result
                                                                                                                                         Yoshitaka TAKEMORI, et al.
```

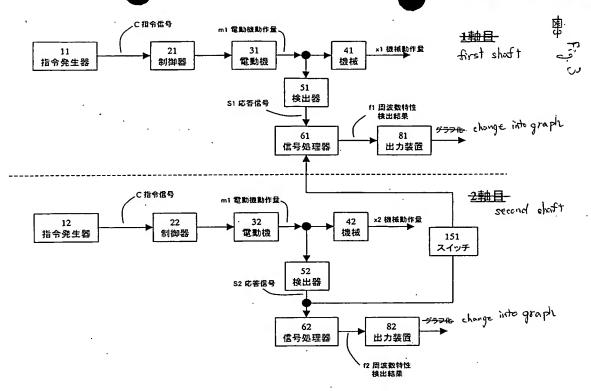
July 7, 2005 Darryl Mexic

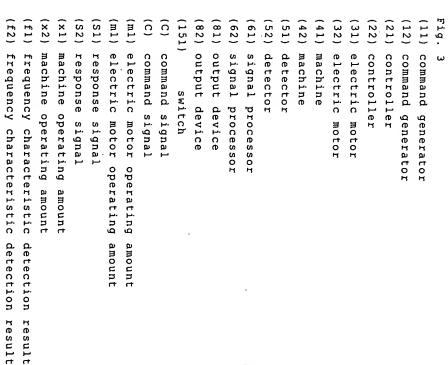
Q88971 2 of 13

RESONANCE FREQUENCY DETECTING...

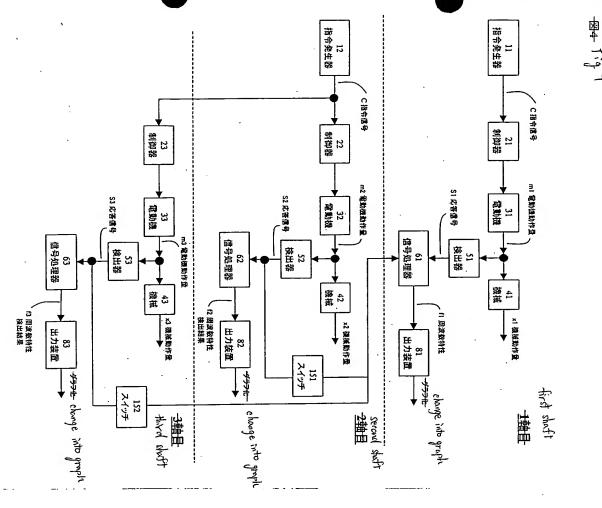
202-293-7060

10/541571



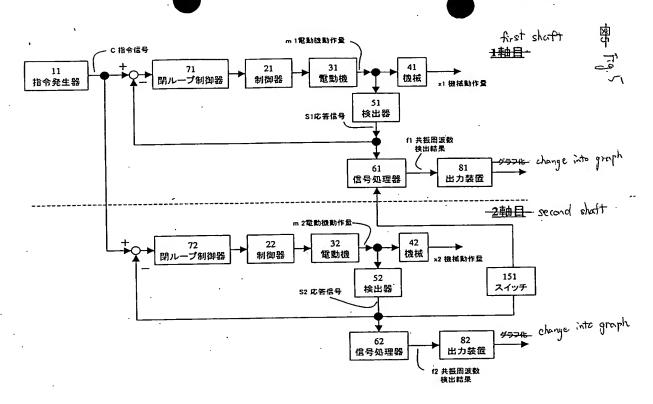


Yoshitaka TAKEMORI, et al. RESONANCE FREQUENCY DETECTING... July 7, 2005 Darryl Mexic 202-293-7060 Q88971 3 of 13



```
Fig.
                                                                                                                                                                                                                                                 <u>C</u>
                                                        (x3)
                                                                                               (x1)
                                                                                                                (S3)
                                                                                                                                   (S2)
                                                                                                                                                      (S1)
                                                                                                                                                                        (m3)
                                                                                                                                                                                          (m2)
                                                                                                                                                                                                                                (C)
                                                                                                                                                                                                                                                                     (152)
                                                                                                                                                                                                                                                                                       (151)
                                                                                                                                                                                                                                                                                                                                                                                                                          (53)
                                                                                                                                                                                                                                                                                                                                                                                                                                                               (51) detector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (43) machine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (41)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (33)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (31) electric motor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (22)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (21)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (12)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (11) command generator
                                                                            (x2)
                                                                                                                                                                                                                                                                                                          (83) output device
                                                                                                                                                                                                                                                                                                                           (82) output device
                                                                                                                                                                                                                                                                                                                                              (81) output device
                                                                                                                                                                                                                                                                                                                                                                  (63) signal processor
                                                                                                                                                                                                                                                                                                                                                                                  (62) signal processor
                                                                                                                                                                                                                                                                                                                                                                                                                                            (52) detector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (42) machine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (32) electric motor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (23) controller
                                                                                                                                                                                                            (ml) electric motor operating
                                                                                                                                                                                                                                                                                                                                                                                                      (61) signal processor
                                                                                                                                                                                          electric motor operating
                                                                                                                                                                                                                                                                                                                                                                                                                         detector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       machine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           electric motor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     controller
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      controller
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        command generator
                                                        machine operating amount
                                                                                            machine operating amount
                                                                                                                                 response signal
                                                                                                                                                     response signal
                                                                                                                                                                       electric motor operating amount
                                                                                                                                                                                                                               command signal
                                                                         machine operating
                                                                                                                 response signal
                                                                                                                                                                                                                                                 command signal
frequency characteristic detection result
                  frequency characteristic detection result
                                    frequency characteristic
                                                                                                                                                                                                                                                                    switch
                                                                                                                                                                                                                                                                                        switch
                                                                         amount
                                                                                                                                                                                                             amount
```

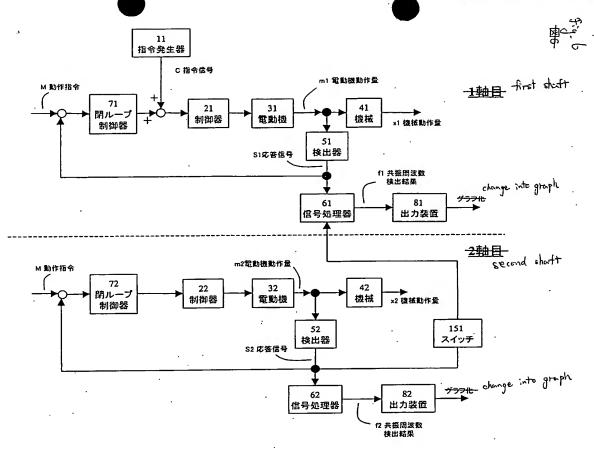
Yoshitaka TAKEMORI, et al.
RESONANCE FREQUENCY DETECTING...
July 7, 2005
Darryl Mexic 202-293-7060
Q88971
4 of 13

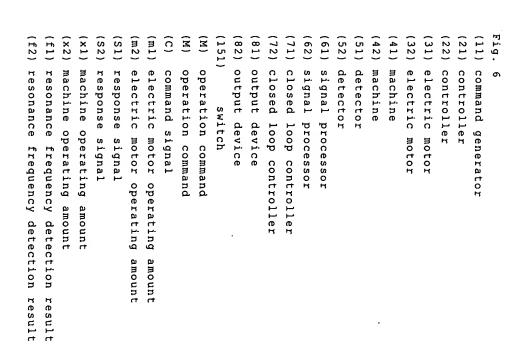


(151)(51)(41)(22)(11)(S1) (m1) (61)(52)(42)(32)(82) output device (f2) resonance frequency detection result output device machine operating response signal response signal electric motor operating electric motor operating command signal closed loop controller closed signal signal processor detector detector machine machine electric electric controller controller command generator machine operating resonance switch loop controller processor motor motor frequency detection amount amount amount result

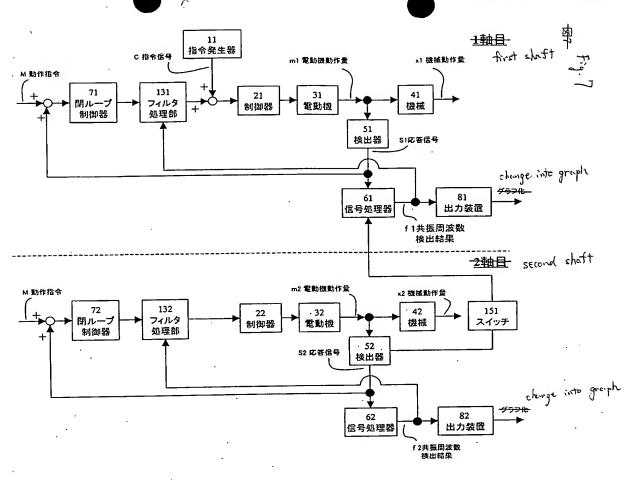
> Yoshitaka TAKEMORI, et al. RESONANCE FREQUENCY DETECTING... July 7, 2005 Darryl Mexic 202-293-7060 Q88971 5 of 13

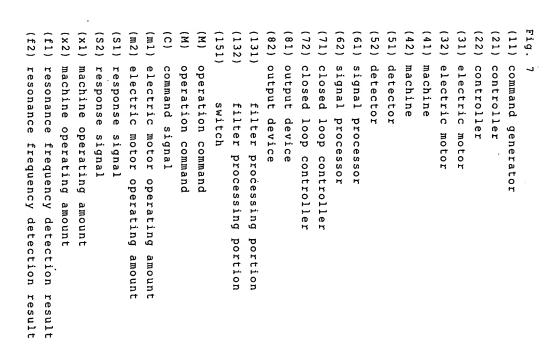
10/541571



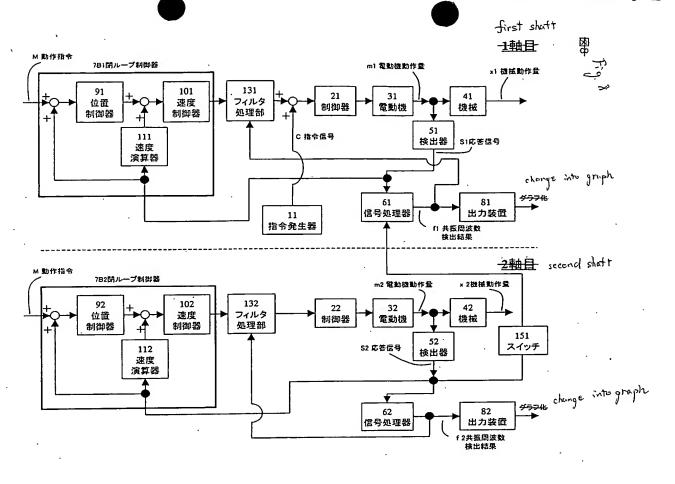


Yoshitaka TAKEMORI, et al.
RESONANCE FREQUENCY DETECTING..
July 7, 2005
Darryl Mexic 202-293-7060
Q88971
6 of 13



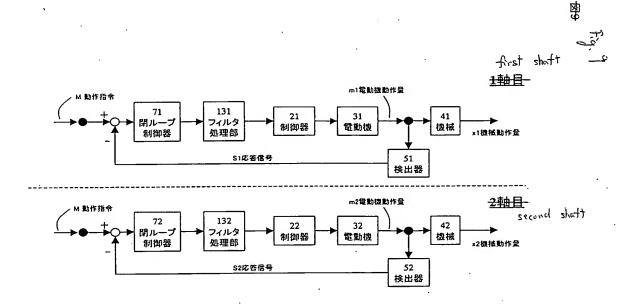


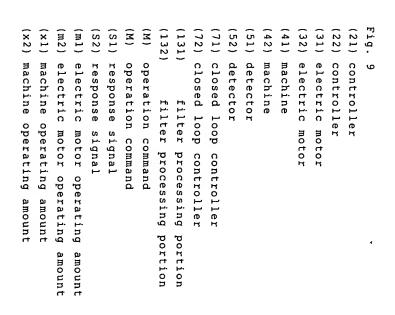
Yoshitaka TAKEMORI, et al. RESONANCE FREQUENCY DETECTING... July 7, 2005 Darryl Mexic 202-293-7060 Q88971 7 of 13

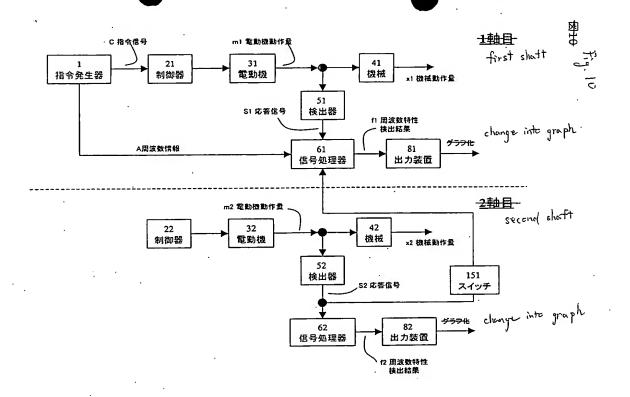


(7B2)(131 (112 (C) (781)(X <u>X</u> (151 (132 (111 (102 (101) (51)(42)(31)(22)(92) position controller (91) position controller (52)(21)(82) output device (61)f2) resonance output device signal processor signal processor detector machine machine machine operating operation command detector electric motor controller controller machine operating amount electric command generator resonance response signal electric motor operating operation command response command signal closed loop controller closed speed speed speed controller filter speed calculator filter motor signal frequency detection frequency detection result calculator controller processing loop controller processing operating amount portion portion amount

Yoshitaka TAKEMORI, et al.
RESONANCE FREQUENCY DETECTING...
July 7, 2005
Darryl Mexic 202-293-7060
Q88971
8 of 13







Change into graph Change into graph First shaft (S1) (151)(42)(f2) frequency characteristic detection (82) output device (41)<u>C</u> (62) (52)(22)output device machine operating amount machine operating signal processor signal processor detector detector machine machine frequency characteristic response signal response signal electric motor operating amount electric motor operating electric motor frequency information command signal electric motor controller command generator switch amount detection amount result result

Yoshitaka TAKEMORI, et al.
RESONANCE FREQUENCY DETECTING..
July 7, 2005
Darryl Mexic 202-293-7060

Q88971 10 of 13

111 Fig. 11

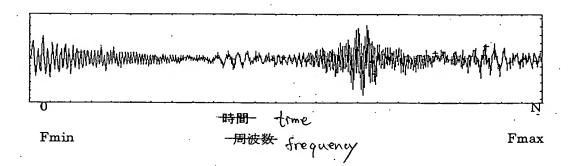
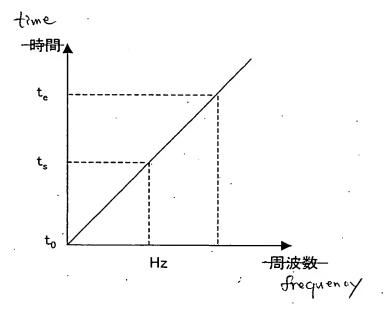
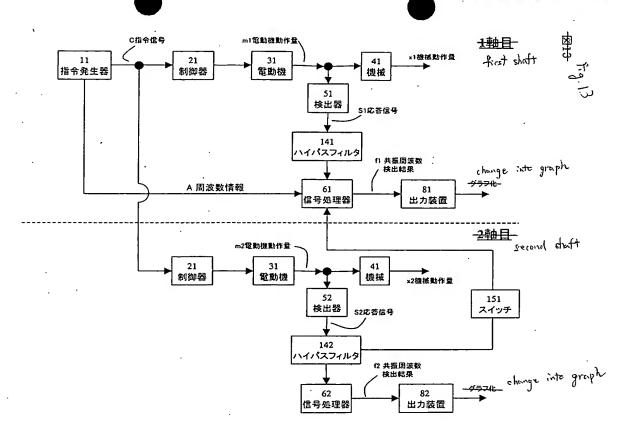


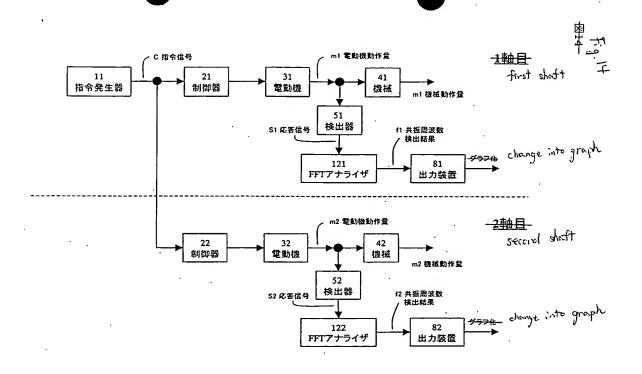
图12 Fig.12

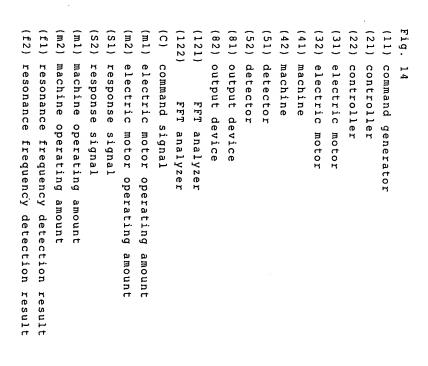




(151)(142)(141)3 (81) output device (51)(f2) resonance frequency detection result (82) output device (21)signal processor signal processor detector machine machine operating amount electric motor operating electric motor operating detector machine operating amount response signal machine controller resonance response signal command signal electric motor electric motor command generator frequency information high-pass high-pass filter frequency detection result filter amount

Yoshitaka TAKEMORI, et al.
RESONANCE FREQUENCY DETECTING...
July 7, 2005
Darryl Mexic 202-293-7060
Q88971
12 of 13





Yoshitaka TAKEMORI, et al.
RESONANCE FREQUENCY DETECTING...
July 7, 2005
Darryl Mexic 202-293-7060
Q88971
13 of 13

This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

BLACK BORDERS

IMAGE CUT OFF AT TOP, BOTTOM OR SIDES

FADED TEXT OR DRAWING

BLURRED OR ILLEGIBLE TEXT OR DRAWING

SKEWED/SLANTED IMAGES

COLOR OR BLACK AND WHITE PHOTOGRAPHS

GRAY SCALE DOCUMENTS

LINES OR MARKS ON ORIGINAL DOCUMENT

REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY

IMAGES ARE BEST AVAILABLE COPY.

☐ OTHER:

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.